Teaching Guide				
Identifying Data				2018/19
Subject (*)	Project Management		Code	610509137
Study programme	Mestrado Universitario en Investigación Química e Química Industrial (Plan 2017)			
Descriptors				
Cycle	Period	Year	Type	Credits
Official Master's Degree	Yearly	First	Optional	3
Language	Galician			
Teaching method	Face-to-face			
Prerequisites				
Department	Química			
Coordinador	Ligero Martínez - Risco, Pablo	E-mail	pablo.ligero@udc.es	
Lecturers	Ligero Martínez - Risco, Pablo	E-mail	pablo.ligero@udc.es	
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General description	A materia se inscribe dentro do segundo cuadrimestre do ultimo curso do grao de química. O obxectivo da mesma é dobre, por unha banda, pretendese que o alumnado teña coñecemento de tódolos pasos que leva á elaboración dun proxecto e, por outra, procurarase que o alumnado traslade eses coñecementos ó eido da química mediante a planificación e desenvolvemento dun proxecto de química dende un punto de vista técnico-económico-social.			

Study programme competences	
Code	Study programme competences
A1	Define concepts, principles, theories and specialized facts of different areas of chemistry.
A2	Suggest alternatives for solving complex chemical problems related to the different areas of chemistry.
A4	Apply materials and biomolecules in innovative fields of industry and chemical engineering.
A5	Properly assess risks and environmental and socioeconomic impacts associated with special chemicals
A6	Design processes involving the treatment or disposal of hazardous chemicals
A8	Analyze and use the data obtained independently in complex laboratory experiments and relating them with the chemical, physical or biological appropriate techniques, including the use of primary literature sources
A9	Promote innovation and entrepreneurship in the chemical industry and in research.
B1	Possess knowledge and understanding to provide a basis or opportunity for originality in developing and / or applying ideas, often within a research context
B2	Students should apply their knowledge and ability to solve problems in new or unfamiliar environments within broader (or multidisciplinary) contexts related to their field of study.
B3	Students should be able to integrate knowledge and handle complexity, and formulate judgments based on information that was incomplete or limited, include reflecting on social and ethical responsibilities linked to the application of their knowledge and judgments.
B4	Students should be able to communicate their conclusions, and the knowledge and the reasons that support them to specialists and non-specialists in a clear and unambiguous manner
B6	Innovate in the different areas of chemistry, demonstrating initiative and entrepreneurship
B7	Identify information from scientific literature by using appropriate channels and integrate such information to raise and contextualize a research topic
B8	Evaluate responsibility in the management of information and knowledge in the field of Industrial Chemistry and Chemical Research
B9	Demonstrate ability to analyze, describe, organize, plan and manage projects
B10	Use of scientific terminology in English to explain the experimental results in the context of the chemical profession
B11	Apply correctly the new technologies to gather and organize the information to solve problems in the professional activity.
B12	Being able to work in a team and adapt to multidisciplinary teams.
C1	CT1 - Elaborar, escribir e defender publicamente informes de carácter científico e técnico
C2	CT2 - Traballar en equipo e adaptarse a equipos multidisciplinares.
C3	CT3 - Traballar con autonomía e eficiencia na práctica diaria da investigación ou da actividade profesional.
C4	CT4 - Apreciar o valor da calidade e mellora continua, actuando con rigor, responsabilidade e ética profesional.
C5	CT5 - Demostrar unha actitude de respecto polas opinións, valores, comportamentos e prácticas doutros

Learning outcomes			
Learning outcomes	Study programme competences		
To have ability to plan and design in chemical projects	AC1 AC2 AC5 AC6 AC8 AC9	BC2 BC4 BC6	CC1 CC3
To have theoretical knowledge in industrial chemical process	AC1 AC4 AC5 AC9	BC3 BC8 BC10	
To have ability to work in teams.		BC9	CC2 CC5
Prepare and write scientific report	AC1		CC1 CC3 CC4
Ability to investigate and implement knowledge-based and oriented to the common good solutions.	AC2	BC1 BC7 BC11 BC12	

Contents	
Topic	Sub-topic
Tema 1. Xeralidades dun proxecto.	Concepto. Os proxectos en enxeñaría. Definición e obxectivos dun proxecto. Tipos de proxectos. Etapas de deseño. Ciclo de vida dun proxecto industrial. Aspectos organizativos dun proxecto.
1. BASIC CONCEPTS OF PROJECT	1.1. Project definición and general characteristics 1.2. Project theory: Definition and classification 1.3. Project characteristics and stages 1.4. Project lifecycle 1.5. Project management
2. FEASIBILITY STUDIES: ECONOMIC FEASIBILITY	2 Economic feasibility estudies 2.1. Market research 2.2. Demand and supply 2.3. Market mechanism 2.4. Demand elasticities : Definition and types 2.5. Price estimation and income
3. FEASIBILITY STUDIES: INDUSTRIAL LOCATION AND CAPACITY-SIZE OF THE PLANT	3.1 Location of plant 3.1.1 Factors of industrial location 3.2.2. Estimate methods 3.2. Capacity-size plant estimation 3.2.1. Economy of scale 3.2.2. Capacity-size estimation methods
Tema 5. Documentación dun proxecto.	Memoria descriptiva. Memoria justificativa: presentación de cálculos. Pliego de condicións. Definición e estrutura. Condicións xerais. Condicións particulares.
Tema 6. Proxectos de I D.	Planificación, seguimiento e control de proxectos de I D. Técnicas de preparación de proxectos. Xustificación técnica e económica de proxectos de I D.

Planning				
Methodologies / tests	Competencies	Ordinary class hours	Student?s personal work hours	Total hours
Guest lecture / keynote speech	A1 A5 A9	9	18	27
Mixed objective/subjective test	A1 B2 B4 B10 C1	3	0	3
Seminar	A2 A4 A6 A8 B1 B3 B4 B6 B7 B8 B9 B10 B11 B12 C1 C2 C3 C4 C5	12	27.6	39.6
Personalized attention		5.4	0	5.4
(*)The information in the planning table is for guidance only and does not take into account the heterogeneity of the students.				

Methodologies	
Methodologies	Description
Guest lecture / keynote speech	As sesións maxistrais impartiranse ó grupo completo. Consistirán en leccións expositivas nas que se exporá de forma ordenada o temario da materia. Ó comezo de cada tema exporase claramente o contido e obxectivos principais de dito tema. Asemesmo, ó final do tema farase un breve resumo dos contidos máis salientables. Para facilita-la labor de seguimento por parte do alumno das clases presenciais proporcionaráselle con antelación o material docente utilizado polo profesor. A exposición de cada un dos temas apoiárase en medios audiovisuais.
Mixed objective/subjective test	Os estudantes realizarán un exame con cuestións fundamentalmente teórico-prácticas que permitirá individualiza-la cualificación final.
Seminar	This methodology aims to go in deep some specific aspects of the subject treated more generally in the theory classes. For this, we will work on practical work related to project development and process units.

Personalized attention	
Methodologies	Description
Seminar Mixed objective/subjective test	In the seminars, personalized attention will be through face tutorials. Students with appreciation a part-time academic and attendance waiver of exemption may complete the work tutored in custom and / or group tutoring schedule to be agreed with the teachers. The activities undertaken in these tutorials will be similar to those of students in ordinary regime and consideration for the final assessment with 20% of the grade global. In the seminars personalized attention will be done by face and by electronic means tutoring . At the individual level the student may submit questions concerning practical issues raised in class . At the individual level the student may submit questions concerning practical issues raised in the class. In supervised work , personal attention seek to resolve the difficulties posed to the students in the formulation of the project, the choice of tools and analysis of information and the results achieved, and the revision of successive work drafts of the report . In addition to the follow-up work in group tutoring sessions , there will be an individual tutoring schedule established by teachers.

Assessment			
Methodologies	Competencies	Description	**Qualification**
Seminar	A2 A4 A6 A8 B1 B3 B4 B6 B7 B8 B9 B10 B11 B12 C1 C2 C3 C4 C5	During the week some exercices will be provided to students to solve which should be turned over to teacher before correcting in the seminar sesion. Other times, teacher will provide some exercices to students for solving in the seminar sesion. The handed exercises will be scored up 20%, proportional way, of total score.	45

Mixed objective/subjective test	A1 B2 B4 B10 C1	Os estudiantes realizarán un exame con cuestións fundamentalmente teórico-prácticas que permitirá individualiza-la cualificación final.	55

Assessment comments
The test will include two parts: one theorical part and other practical. The test score will add to score of the other activities.To pass the course at least 4 points will be required in the test, do and turn over project and get 5 points in the final mark. If the minimum score is not reached and/or the project is not hand, moreover the sum of final mark is 5 points, or more, the matter appear as failing grade (4,5). Students who don´t appear more than 20% of activities will considere like "not attend". The score of seminar and supervised project in the second opportunity will keep while the test score of the second opportunity will replace the score of first opportunity test. Students in second opportunity cannot reach maximum score if was reached in first opportunity. The next course will begin like new one course in all activities.

Sources of information	
Basic	- Cabra Dueñas, L., de Lucas Martínez, A., Ruiz Fernández, F. e Ramos Marcos, M.J. (2010). Metodología del diseño aplicado y gestión de proyectos para ingenieros quiímicos. Ediciones de la Universidad de Castilla-La Mancha - Canon, J.L. , Rebollar, R. e Saenz, M.J. (2003). Curso de gestión de proyectos. Manual del alumn. Asociación Española de Ingeniería de Proyectos (AEIP) - Corchuelo, B., Eguía, B. y Valor, M.T. (2006). Curso práctico de microeconomía. Delta publicaciones - Cepeda, I.; Lacalle, M.; Simón, J.R.; Romero, D. (2004). Economía para ingenieros. Thomson editores - Cos Castillo, M. de (1997). Teoría General del Proyecto. Volumen I: Dirección de Proyectos. Editorial Síntesis - Sapag Chain, N. y Sapag Chain, R. (2000). Preparación y Evaluación de Proyectos. Editorial McGraw-Hil Plant Design and Economics for Chemical Engineers. M. S. Peters, K.D. Timmerhaus, R. E. West, Ed. McGraw Hill (2004)http://www.micinn.es" www.micinn.es http://www.mineco.gob.es/portal/site/mineco/idi" http://www.mineco.gob.es/portal/site/mineco/idi http://www.cdti.es" www.cdti.es http://ec.europa.eu/research/fp7" http://ec.europa.eu/research/fp7 http://ec.europa.eu/programmes/horizon2020/h2020-sections" http://ec.europa.eu/programmes/horizon2020/h2020-sections https://ec.europa.eu/research/participants/portal/desktop/en/home.htmlhttps://ec.europa.eu/research/participants/portal/desktop/en/home.html Plant Design and Economics for Chemical Engineers. M. S. Peters, K.D. Timmerhaus, R. E. West, Ed. McGraw Hill (2004)http://www.micinn.es" www.micinn.es http://www.mineco.gob.es/portal/site/mineco/idi" http://www.mineco.gob.es/portal/site/mineco/idi http://www.cdti.es" www.cdti.es http://ec.europa.eu/research/fp7" http://ec.europa.eu/research/fp7 http://ec.europa.eu/programmes/horizon2020/h2020-sections" http://ec.europa.eu/programmes/horizon2020/h2020-sections https://ec.europa.eu/research/participants/portal/desktop/en/home.htmlhttps://ec.europa.eu/research/participants/portal/desktop/en/home.html
Complementary	- Corchuelo, B., Eguía, B. y Valor, M.T. (2006). Curso práctico de microeconomía. Delta Publicaciones - Vian, A. (1991). El Pronóstico Económico en Química Industrial. Editorial Eudema - Peters, M. S., Timmerhaus, K. D. y West, R. E. (2012). Plant Design and Economics for Chemical Engineers. Editorial McGraw-Hill

Recommendations
Subjects that it is recommended to have taken before

Mathematics 1/610G01001
Mathematics 2/610G01002
Physics 1/610G01003
Physics 2/610G01004
General Chemistry 1/610G01007
General Chemistry 2/610G01008
General Chemistry 3/610G01009
Chemistry Laboratory 1/610G01010
Chemistry Laboratory 2/610G01032
Chemical Engineering/610G01033
Subjects that are recommended to be taken simultaneously
Subjects that continue the syllabus
Other comments

(*)The teaching guide is the document in which the URV publishes the information about all its courses. It is a public document and cannot be modified. Only in exceptional cases can it be revised by the competent agent or duly revised so that it is in line with current legislation.